Giuseppe Pes

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I'm an enthusiast software engineer with a particular interest in *C* programming and *Linux*. I also do lots of work in *JavaScript*, *Java* and *Python*. I learnt programming when I was 15 on my own and since then it has become my greatest passion. In my spare time, I love trying new technologies (recently *ReactJS* and *WebRTC*) and contribute to open source projects.

Skills

Programming: C, C++, Java, JavaScript, Python, Assembler(x86)

Frameworks: Express, Django, Jetty, Spring, BackBoneJS, ReactJS, MartyJS

Operating Systems: Linux (Gentoo, Arch, Ubuntu), FreeBSD

Languages: English [fluent], Italian [native speaker]

Interests: Cooking, Reading, Startups, Dancing

Relevant Work Experience

Full stack developer (NodeJS, Python, JavaScript) *Qubit* *Sept 2014 - Now*

- I successfully moved a monolithic *Rails* application to a microservice architecture based on *NodeJS*. The new *microservice* architecture delivered a 20% improve in performance.
- I developed and I am currently the responsible for a *job queue* system which processes all statistical results for Qubit A/B tests.
- I contributed to the design of a profile specification which allows to precisely describe segment of visitors. The profile specification is successfully employed to identify segment of visitors across the entire Qubit infrastructure.
- I am currently involved in the development of an audience segmentation tool. As part of my job, I successfully implemented a cookie compression lib which achieved 80% *compression rate*. Main technologies used *NodeJS*, *ReactJS* and *Flux*.

Backend developer (Java) *IBM* *Sept 2013 - Aug 2014*

- As Java developer, I was involved in the development of Survey Analytics. I delivered software solutions based on *JavaEE*, *EJB 3.1*, *Spring* and *WebSphere*.
- I implemented a categorization system for customer feedbacks. The system used an instance based algorithm (k-NN algorithm) to classify customer feedbacks in different categories. The system achieved a 80% precision in average and was employed in the landing page of the platform.
- I worked along with a Canadian team on *Watson Analytics*. I contributed to devise and developed a meta-data syntax to correctly map natural language questions to the correct data set.

Education

M.Sc. Computing, Specialism in Software Engineering [Graduated with Distinction] *Sep 2013*
Imperial College, London, UK
Main subjects: Software Engineering for Industries, Advanced Object Oriented Programming, Machine Learning, Systems Verification, Performance Analysis, Advanced computer Architecture, Advanced Databases.

- **Multi-Variant Execution System**, *(C, C++, Assembly)* *4 months*
  As final project for my MSc, I designed a *multi-variant execution* system which runs two slightly different instances of an application and synchronises their execution at the *system call level*. Divergences in the behaviour of the variants are considered a possible attack and correctly handled. The prototype has been successfully employed to identify and prevent attacks based on buffer overflows on real applications like *Lighttpd* and *Apache*. The project lasted for 4 months and was developed in *C* and a small part in *Assembly*. Relevant technology used *seccomp-BPF*.

- **Sytem call interceptor**, *(C)* *3 months*
  I analysed different technologies which can be used to implement a system call interceptor for *sandboxing* purposes in Linux, such as *ptrace*, *utrace*, *seccomp*, *kernel enhancements* and binary *rewriting technologies*. In addition, I had the opportunity to study in details *seccompsandbox* and *minijail* the sandboxes used by Chrome, and to develop my own solution using *ptrace* and *secomp-BPF*.
- **Mobile Healthcare Delivery**, *(Java, JavaScript)* *3 months*
  As a coordinator of the group project, I lead the successful implementation of a web application for *Mobile Healthcare Delivery* for a London start-up called *Cupris*. I internally managed a team of 5 students. The application was a success and satisfied all requirements requested by the company. The outcome of the project became the MVP used by the startup. The main technologies used were *Java* and *Jetty* in the back-end and *BackBoneJS* as front-end framework.

B.S. Computer Engineering [110/110 (first class)] *July 2011*
University of Pisa, Pisa, IT
Main topics: Software engineering, Computer architecture, CPU design, Objects oriented programming, database, operating system, management.

- **Final project**, *(C, Assembly)* *3 months*
  I implemented a *file system* compatible with *FAT32* for a *kernel* developed by the computer engineering department. The result was a fully functional file system along with a complete system call interface (UNIX compatible) which could be used to manage files. It was an individual project that lasted for 3 months during my last year, principally developed in *C* and *Assembly (x86)*.
- **Java MM**, *(C++)* *1 month*
  Implementation of a *compiler* for *Jmm* (Java minus minus), a restricted subset of Java. The compiler was implemented in *C++*.
- **HTTP Exchange**, *(PHP)*
  Designed a protocol based on HTTP for a real time data exchange between two clients. The protocol has then

Other projects

Seevcam, *Cloud video interview platform* *2015*

Seevcam is a *cloud video interview tool*. I fully implemented the application on my own. The platform has been successfully employed to carry out real interviews. Main technologies used *Python 3*, *WebRTC* and *BackBoneJS*.

Squiddy *Multi users video conference* *2014*

Squiddy is a multi users video conference application that I build on my own in 2014 to learn *WebRTC*. Squiddy is built using vanilla *WebRTC* and performs session renegotiation when any of the multimedia options change. *Squiddy* can have up to 5 contemporary users in the same conference room.

Ligthttpd *Open source contribution* *2014*

Submitted patch to fix *MOVE* and *COPY* requests in the *WebDAV* protocol implementation when aliasing folders are used.